## Wide-Ranging Search Yields 1,000 Clues

Densely Forested Area of East Texas Could Contain More Important Pieces of Shuttle Wreckage



U.S. Agents from the Defense Criminal Investigative Service use global positioning devices to document the location of a piece of wreckage from the shuttle Columbia yesterday.

Photo by Mike Nelson - AGENCE FRANCE-PRESSE

By Lee Hockstader and Craig Timberg Washington Post Staff Writers Monday, February 3, 2003; Page A15

LUFKIN, Tex., Feb. 2 -- Hundreds of federal, state and military personnel poured into east Texas today following the space shuttle's plunge to Earth to launch one of the most massive searches in the nation's history -- an undertaking hugely complicated by the immensity of the territory and thorny impenetrability of the terrain.

The object of the hunt seemed simple enough: to recover as much as possible of the detritus of the 89-ton Columbia in hopes of gleaning clues to the cause of the calamity. And there was an encouraging start: thousands of phone calls to local authorities reporting discoveries of slabs, strips, hunks and spheres of debris coming into one local sheriff's office at the rate of 150 per hour.

Local officials said today that they had identified more than 1,000 locations where debris has been found. But those finds, a NASA official said, represent "the low-hanging fruit." The remaining detective work -- collecting, sorting and examining the Columbia's remnants -- is likely to be confounded by a region thickly canopied by piney forest and densely carpeted by underbrush.

"This whole area is collectively referred to as the Big Thicket, and it's earned its name," said James C. Kroll, director of the Forestry Resources Institute at Stephen F. Austin State University, an expert on the local woods who is also directing a high-tech effort to map every scrap of debris found so far, in coordination with NASA. "In many areas it's impossible to search. It's my prediction that 10 years from

now, there'll be hunters in the woods that find pieces, maybe big pieces."

Assessing the magnitude of the task, a number of officials said some of the debris field is so impassable that the search could prove more difficult than the recovery efforts following the destruction of the space shuttle Challenger, which exploded off the coast of Florida in 1986 shortly after liftoff.

Finding significant pieces of the Challenger was facilitated by sophisticated military and civilian equipment that can detect objects underwater. But there is no comparable technology for discovering objects in dense woods.

Blackberries and thorns, briars and brambles form what foresters call the dense, skin-shredding understory of the woods. Yaupon, a plant sometimes used for thick suburban hedges, grows wild in the woods up to 12 feet high.

Moreover, this is the rainy season in east Texas, which means that some of the forests that might be more navigable later in the year are now swampy and wet. Mindful of the challenge, officials said some searchers might embark on horseback or all-terrain vehicles. For now, the search has not really begun in earnest.

Hundreds of pieces of the Columbia remained in the spots where they had fallen -- on the roofs of schools, in back yards and road shoulders, and, in one case, on an office desk, where it had landed after smashing through the roof of an optometrist's office in the east Texas town of Nacogdoches.

Some of the items include a portion of a cockpit harness, computer components and a section of a tire, said Nacogdoches County Sheriff Thomas Kerss.

In Houston, the NASA shuttle program manager Ron Dittemore said, "It's going to take some time. We're pulling

together the experts in the country that do these kinds of things, and we're very hopeful we'll find the necessary information that will help us solve why Columbia was destroyed."

Dittemore appealed to residents of east Texas for patience and said officials are proceeding methodically because of the possible hazard posed by the debris.

"I don't have a particular time or date [for when the removal will begin]," he said. "We are working as fast as we can. . . . We do not want any individuals to be harmed in any way."

With NASA, the Environmental Protection Agency, Air Force ordnance disposal experts and other agencies still converging in east Texas, local authorities said they lacked the manpower to check and guard all the debris that remains on the ground.

In Nacogdoches County, where hundreds of pieces of debris have been identified, officials said they had only 400 law enforcement officers to guard it all; an additional 80 state troopers were to arrive to supplement that force. They had secured 130 locations, concentrating on those spots with human remains, fuel cells, volatile material or components with possible computer data.

Ultimately, NASA officials said, the debris is to be taken to a staging area at Barksdale Air Force Base near Shreveport, La

In addition to the remnants of the Columbia, some human remains were found in east Texas, not far from the Louisiana border. NASA officials confirmed that remains of some astronauts had been found. A charred astronaut's helmet, intact but for a missing visor, was also found.

One of the grislier discoveries was a charred human leg, from hip to foot, that was found on a farm 50 miles east of Nacogdoches. Separately, a woman's arm was found, according to reports in local newspapers quoting local officials.

The remains are to be examined at Dover Air Force Base in Delaware, where investigations following past disasters, including the Challenger and the Sept. 11, 2001, terrorist attacks, were conducted.

The search is being directed from Lufkin, where a command center at the local civic center has been established for the many federal agencies that have responded.

FBI officials here warned local residents that the Columbia's debris is federal property and that anyone caught removing debris would be prosecuted for theft.

EPA officials said they are dispatching both airborne and ground-based equipment to track environmental contaminants. The agency will be principally involved with the removal of debris, and officials said they would concern themselves first with larger chunks -- pieces bigger than a breadbox.

Mindful of the debris in and around some schools in the region, local officials were considering whether classes should open on Monday. EPA authorities have told local officials they will make cleanup at schools a priority.

Kroll, the forestry expert who is helping to map the debris, said he was directing 12 teams of two or three workers each, which had been in the field almost around the clock since 10:30 a.m. Saturday.

The teams, made up of both students and staff from Austin State, which is in Nacogdoches, are entering precise data about each piece of debris they find into handheld global positioning devices aided by antennas, classifying it according to longitude and latitude, type and size of material. By midafternoon today, Kroll said, the teams had already mapped several hundred

pieces, and he expects the work to continue at this pace for at least two weeks.

Early concerns that the debris that plummeted from the shuttle had created a toxic waste site, 100 miles long and 10 miles wide, were largely allayed. About 85 people from east Texas had gone to hospital emergency rooms to be examined after reporting having found or come in contact with debris from the Columbia, according to Texas authorities. However, none was treated for chemical burns or seemed seriously hurt.

Federal and state officials continued to warn residents not to handle pieces they might find, but experts concluded it was unlikely that humans, plants or water supplies were contaminated.

"Since the heat was so high during the reentry [of the Columbia], the chemicals that posed a risk probably would have been burned out," said Desiree Pendergrass, a physician and official with the Texas Department of Health.

On the outskirts of Nacogdoches, Benjamin Sanders, 25, the son of the town's fire chief, was at his parents' home Saturday morning when an "awesome" noise shook the windows, followed by the thud of an object hitting the roof. Sanders scaled the roof and found what looked like a brick-size piece of a computer's circuit board. Puzzled, he picked it up and sniffed it. Two smaller pieces hit several minutes later, one on the roof, the other in the yard.

It was only later, when Sanders saw television reports that he realized the material came from the shuttle. When he heard warnings about the chance of toxic material on the debris, he washed his hands but did not go to the hospital, he said.

The three pieces at his parents' home were collected by a neighbor, a National Guardsman, who used a garbage can lid to cart them off. By this morning, the guardsman had collected a half-dozen other pieces in his driveway, including a footlong strip and an electrical converter bearing the words "Made in the U.S.A."